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U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

**SUSQUEHANNA STEAM ELECTRIC STATION  
SECOND SIX-MONTH STATUS REPORT IN  
RESPONSE TO MARCH 12, 2012 COMMISSION  
ORDER MODIFYING LICENSES WITH REGARD  
TO REQUIREMENTS FOR MITIGATION  
STRATEGIES FOR BEYOND-DESIGN-BASIS  
EXTERNAL EVENTS (NRC ORDER EA-12-049)  
PLA-7137**

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**Docket No. 50-387  
and No. 50-388**

- References:
1. NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012
  2. NRC Interim Staff Guidance JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0, dated August 29, 2012
  3. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012
  4. PPL Letter (PLA-6923), "Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated October 29, 2012
  5. PPL Letter (PLA-6981), "Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (NRC Order EA-12-049)," dated February 28, 2013
  6. PPL Letter (PLA-7072), "Request for Implementation Date Relief in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (NRC Order EA-12-049)," dated August 26, 2013
  7. NRC Order EA-13-109, "Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions," dated June 6, 2013
  8. PPL Letter (PLA-7071), "First Six Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)," dated August 26, 2013
  9. PPL Letter (PLA-7134), "Request for Relaxation from NRC Order EA-12-049, 'Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events'" dated February 20, 2014
  10. NRC Letter from J. S. Bowen to T. S. Rausch, "Susquehanna Steam Electric Station, Units 1 And 2 – Interim Staff Evaluation Relating To Overall Integrated Plan In Response To Order EA-12-049 (Mitigation Strategies) (TAC NOS. MF0888 and MF0889)," dated January 24, 2014 (ADAMS # MLI3339A764)

The purpose of this letter is to provide PPL Susquehanna, LLC's (PPL) second six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. Enclosure 1 provides

an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief and the basis, if any. Enclosure 2 is a revision of the Mitigation Strategies Overall Integrated Plan. This revision documents the change from 480 VAC generators to 4160 VAC generators in Phase 2 and several other updates. Enclosure 2 contains security-related information to be withheld from public disclosure under 10 CFR 2.390.

On March 12, 2012, the Nuclear Regulatory Commission (“NRC” or “Commission”) issued an order (Reference 1) to PPL Susquehanna, LLC (PPL). Reference 1 was immediately effective and directs PPL to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment cooling, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (Reference 2) and an overall integrated plan pursuant to Section IV, Condition C. Reference 2 endorses industry guidance document NEI 12-06, Revision 0 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided PPL’s initial status report regarding Mitigation Strategies. Reference 5 provided PPL’s initial Mitigation Strategies Overall Integrated Plan.

Reference 1 requires submission of a status report at six-month intervals following submittal of the Overall Integrated Plan. Reference 3 provides direction regarding the content of the status reports.

The Request for Relaxation contained in Reference 9 supersedes the Request for Relief made in Reference 6. The Request for Relaxation is based on NRC mandated changes to the Hardened Containment Vent System implementation dates that impact the Mitigation Strategy Overall Integrated Plan. Specifically, the change in implementation dates for the Hardened Containment Vent Order (NRC Order EA-12-050 was rescinded and superseded by NRC Order EA-13-109) impacts the Mitigation Strategy Overall Integrated Plan and implementation timeline.

This letter contains no new or revised regulatory commitments.

If you have any questions regarding this report, please contact Mr. John L. Tripoli at 570-542-3100.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 2/28/14

Sincerely,



T. S. Rausch

Enclosure 1: PPL Susquehanna, LLC's Second Six Month Status Report for the Implementation of NRC Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

Enclosure 2: PPL Susquehanna's Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), (February 2014) Security-Related Information - Withhold from Public Disclosure Under 10 CFR 2.390.

Copy: NRC Region I

Mr. J. E. Greives, NRC Sr. Resident Inspector  
Ms. Jessica A. Kratchman, NRR/JLD/PMB, NRC  
Mr. J. A. Whited, NRC Project Manager  
Mr. L. J. Winker, PA DEP/BRP

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**Enclosure 1 to PLA-7137**

**PPL Susquehanna, LLC's Second Six Month  
Status Report for the Implementation of NRC  
Order EA-12-049, Order Modifying Licenses  
with Regard to Requirements for Mitigation  
Strategies for Beyond-Design-Basis External  
Events**

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## **PPL Susquehanna, LLC's Second Six Month Status Report for the Implementation of NRC Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events**

### **1. Introduction**

PPL Susquehanna, LLC (PPL) developed an Overall Integrated Plan (Reference 1) documenting the diverse and flexible strategies (FLEX), in response to Reference 2. This Second Six Month Status Report provides an update of milestone accomplishments since submittal of the First Six Month Status Report (Reference 7) related to the Overall Integrated Plan, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

**[NOTE: References cited in this enclosure are contained in Section 8.]**

### **2. Milestone Accomplishments**

The following milestone(s) have been completed since the development of the Overall Integrated Plan (Reference 1), and are current as of January 31, 2014.

- Open Items 5, 6, 12 and 14 have been completed.
- Numerous milestones have been started as listed on the Section 3, Milestone Schedule Status table, for example - Phase 2 Staffing Analysis, construction of the equipment storage building, selection of staging areas for Phase 3, modification installation, and training.

### **3. Milestone Schedule Status**

The following table provides an update to Attachment 2, Milestone Schedule, of the Overall Integrated Plan. It provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed.

The revised milestone target completion dates do not impact the Order implementation date at this time. The ISE from the NRC (Reference 9) has been received in time to support implementation of the Mitigation Strategies. The Open Item and Confirmatory Items identified in the ISE will be addressed by the Regulatory Audit Process.

<b>Milestone</b>	<b>Target Completion Date</b>	<b>Activity Status</b>	<b>Revised Target Completion Date</b>
Submit 60 Day Status Report	October 2012	Complete	
Submit Overall Integrated Plan	February 2013	Complete	
Expected receipt of draft SER from NRC (or ISE)	September 2013	Complete*	January 2014
<b>Submit 6 Month Updates:</b>			
Update 1	August 2013	Complete	
Update 2	February 2014	Complete*	
Update 3	August 2014	Not Started	
Update 4	February 2015	Not Started	
Update 5	August 2015	Not Started	
Update 6	February 2016	Not Started	
Update 7	August 2016	Not Started	
FLEX Strategy Evaluation Unit 2	April 2015	Started	
FLEX Strategy Evaluation Unit 1	April 2016	Started	
<b>Validation by Walk-throughs or Demonstration(s):</b>			
Walk-throughs or Demonstrations Unit 2	April 2015	Not Started	
Walk-throughs or Demonstrations Unit 1	April 2016	Not Started	
Perform Staffing Analysis	October 2014	Started*	
<b>Modifications:</b>			
Modifications Evaluation	June 2015	Started	

<b>Milestone</b>	<b>Target Completion Date</b>	<b>Activity Status</b>	<b>Revised Target Completion Date</b>
Unit 2 Design Engineering - Issue Unit 2 Design Change Documents (for all Phases)	June 2014	Started	
Unit 2 Implementation Outage	April 2015	Not Started	
Unit 1 Design Engineering - Issue Unit 1 Design Change Documents (for all Phases)	June 2015	Started	
Unit 1 Implementation Outage	April 2016	Not Started	
<b>Storage:</b>			
Storage Design Engineering	May 2014	Started	
Storage Implementation - Equipment storage (reasonable protection) ready for operation with required FLEX equipment available for use	April 2015	Started*	
<b>FLEX Equipment:</b>			
Procure On-Site Equipment	April 2015	Started	
Contract with Vendor for Regional Response Center (RRCs) established	March 2013	Complete	
Develop Strategies with RRC	April 2015	Started	
Establish offsite staging location [Install Off-Site Delivery Station (if Necessary)]	May 2015	Started	

<b>Milestone</b>	<b>Target Completion Date</b>	<b>Activity Status</b>	<b>Revised Target Completion Date</b>
Regional Response Center in service	December 2014	Started*	January 2015*
<b>Procedures:</b>			
BWROG Emergency Procedure and Severe Accident Guidelines (EPGs/SAGs) Rev. 3	February 2013	Complete	
Procedures Complete Unit 2 FLEX Implementation (including FSGs and maintenance)	April 2015	Started	
Procedures Complete Unit 1 FLEX Implementation (including FSGs and maintenance)	April 2016	Started	
<b>Training:</b>			
Develop Training Plan	May 2014	Started	
Training Complete	February 2016	Started*	
Unit 2 FLEX Implementation	April 2015	Started*	
Unit 1 FLEX Implementation	April 2016	Started*	
Full Site FLEX Implementation	April 2016	Started*	
Submit Completion Report	August 2016	Not Started	
* Revised since the six month update submitted August 26, 2013 (Reference 7)			

#### 4. Changes to Compliance Method

NRC Order EA-12-049 requires implementation of Mitigation Strategies to include procedures, guidance, training, and acquisition, staging, or installing of equipment needed for the strategies.

Reference 1 provided PPL's response to the NRC Order EA-12-049. The cover letter identifies that delays in implementing the Hardened Containment Vent System as required by NRC Order EA-12-050 will affect implementation of the Mitigation Strategies NRC Order EA-12-049 actions.

The Reference 1 enclosure describes PPL's Mitigation Strategies that are based on venting the containment using the Hardened Containment Vent System. It also describes that a modification is required to install a Hardened Containment Vent System.

Thus the PPL response to NRC Order EA-12-049 provided in Reference 1 was premised on installation and use of a Hardened Containment Vent System as required by NRC Order EA-12-050.

Upon issuance of NRC Order EA-13-109, the NRC staff changed technical and schedule requirements applicable to the Hardened Containment Vent System and rescinded the requirements of the NRC Order EA-12-050.

As a result, full compliance to the Mitigation Strategies required by NRC Order EA-12-049 and described in Reference 1 for PPL Susquehanna Units 1 and 2 will not be achieved until compliance with NRC Order EA-13-109 is achieved as described in Reference 8.

#### **5. Need for Relief/Relaxation and Basis for the Relief/Relaxation**

PPL expects to comply with NRC Order EA-12-049, but needs relaxation of the implementation dates. The specific details have been submitted in a separate document (Reference 8).

NRC Order EA-12-049 requires implementation of Mitigation Strategies to include procedures, guidance, training, and acquisition, staging, or installing of equipment needed for the strategies.

Reference 1 provided PPL's response to the NRC Order EA-12-049. The cover letter identifies that delays in implementing the Hardened Containment Vent System as required by NRC Order EA-12-050 will also affect implementation of the Mitigation Strategies NRC Order EA-12-049 actions.

The Reference 1 enclosure describes the PPL Susquehanna Mitigation Strategies that is based on venting the containment using the Hardened Containment Vent System. It also describes that a modification to install a Hardened Containment Vent System is required.

Thus the PPL NRC Order EA-12-049 response provided in Reference 1 was premised on installation and use of a Hardened Containment Vent System as required by NRC Order EA-12-050.

Upon issuance of NRC Order EA-13-109, the NRC staff changed technical and schedule requirements applicable to the Hardened Containment Vent System and rescinded the requirements of the NRC Order EA-12-050.

As a result, full compliance to the Mitigation Strategies required by NRC Order EA-12-049 and described in Reference 1 for PPL Susquehanna Units 1 and 2 will not be achieved until compliance with NRC Order EA-13-109 is achieved.

Relaxation of the NRC Order EA-12-049 IV.A.2 requirements is required and has been requested (Reference 8).

## 6. Open Items from Overall Integrated Plan and Draft Safety Evaluation

The following tables provide a summary and status as of January 31, 2014 of the open items documented in the Overall Integrated Plan and Interim Staff Evaluation (ISE). The Open Item and Confirmatory Items identified in the ISE will be addressed by the Regulatory Audit Process.

Overall Integrated Plan Open Item	Status
1. Phase 3 Shutdown Cooling Capability	Started
2. EOP changes required to support Mitigation Strategies.	Started
3. Develop SSES "playbook" for use of the Regional Response Center (RRC).	Started
4. FLEX Equipment Storage	Started
5. Review GEH Report NEDC 33771P, GEH Evaluation of FLEX Implementation Guidelines and identify exceptions to the report as required in Attachment 1B.	Complete*
6. Determine appropriate use of RCIC or FLEX pump mitigation strategy if ELAP occurs when operating in Mode 4 and when transitioning to mode 3.	Complete*
7. Evaluate the impact of RCIC pump Seal Failures.	Started
8. Evaluate potential RCIC pump modifications.	Started

Overall Integrated Plan Open Item	Status
9. Establish method of venting the Refuel Floor.	Started
10. Evaluate means to assure continued long term gas supply for ADS/SRVs.	Started
11. Evaluate means to transfer diesel fuel oil from storage tanks to the diesel fueled equipment.	Started
12. Evaluate the effects of injecting Spray Pond water (UHS) to the RPV over a long period of time of 72 hours or longer.	Complete*
13. The calculation EC-030-1006, Rev 14, Control Structure Temperature Response to a Station Blackout or Fire Induced Loss Of Control Structure HVAC was performed. However, final review and approval of the calculation EC-030-1006, Rev 14, have not been performed.	Started
14. The calculation EC-SBOR-0504, Rev 6, Reactor Building Heatup Analysis During Station Blackout was performed. However, final review and approval of the calculation EC-SBOR-0504, Rev 6 have not been performed.	Complete*
15. Fuel consumption and refuel intervals will be determined during the procurement process for the 4160VAC generators.	Started
* Revised since the six month update submitted August 26, 2013 (Reference 7)	

## 7. Potential Draft Safety Evaluation Impacts

None - PPL just received the Interim Staff Evaluation and will be closing the Open Item and Confirmatory Items in the future.

## 8. References

The following references support the updates to the Overall Integrated Plan described in this enclosure:

1. PPL Letter (PLA-6981), "Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (NRC Order EA-12-049)," dated February 28, 2013.
2. NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012.
3. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August, 2012.
4. NRC Interim Staff Guidance JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External events," Revision 0, dated August 29, 2012.
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8. PPL Letter (PLA-7134), "Request for Relaxation from NRC Order EA-12-049, 'Order Modifying Licenses With Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events'" dated February 20, 2014
9. NRC Letter from J. S. Bowen to T. S. Rausch, "Susquehanna Steam Electric Station, Units 1 And 2 –Interim Staff Evaluation Relating To Overall Integrated Plan In Response To Order EA-12-049 (Mitigation Strategies) (TAC NOS. MF0888 and MF0889)," dated January 24, 2014 (ADAMS # ML13339A764)